

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Stephen Favakeh (Reg. No. 36,798) on August 10, 2010.

The application has been amended as follows:

Amendments to the Specification:

In the specification on page 6, the paragraph beginning on line 17 has been amended as follows:

~~Fig. 16(a) is a schematic perspective view of the acid treatment device of Fig. 16(b) as viewed from obliquely above and is a front view schematically showing an example of an acid treatment device in the processing line of Fig. 3 and Fig. 16(b) is a front view schematically showing an example of an acid treatment device in the processing line of Fig. 3 is a schematic perspective view of the acid treatment device of Fig. 16(a) as viewed from obliquely above;~~

On page 8, line 14, "Fig. 2q" has been changed to --Fig. 21--.

On page 12, line 6, "a venting unit for chamfering" has been changed to --a chamfering unit for chamfering--.

On page 19, line 18, "rotatable rollers 8" has been changed to --rotatable rollers 48--.

Amendments to the Claims:

1 (Currently Amended). A plate material vertical processing line comprising:

a plurality of processing devices each having a modular structure;
wherein each of the processing devices includes a platform; a conveyance means that is mounted on the platform and is configured to convey a plate material placed in a substantially upright position while supporting a lower end of the plate material; and a fluid guide that is mounted on the platform and is configured to apply a fluid pressure to a surface of the plate material to support the plate material in the substantially upright position and in a non-contact state; and

wherein the plurality of processing devices includes a combination of at least [[two]] one processing devices apparatus selected from a scribing device, a venting device for trimming the plate material, and a chamfering device, and at least one processing apparatus selected from a cleaning agent washing device, a water washing device, a high-pressure water spray device, and a plate material turn device.

2 (Currently Amended). A plate material vertical processing line comprising:

processing units of a plate material; and

a plurality of conveyance devices each having a modular structure;

wherein each of the conveyance devices includes:

a platform;

a conveyance means that is mounted on the platform and is configured to convey the plate material placed in a substantially upright position while supporting a lower end of the plate material;

a fluid guide that is mounted on the platform and is configured to apply a fluid pressure to a surface of the plate material to support the plate material in the substantially upright position and in a non-contact state;

and a mounting element that is mounted on the platform to mount each of the processing units;

wherein the processing units include a combination of at least [[two]] one processing [[units]] unit selected from a scribing unit, a venting unit for trimming the plate material, and a chamfering unit, and at least one processing unit selected from a cleaning agent washing unit, a water washing unit, a high-pressure water spray unit, and a plate material turn unit.

3 (Currently Amended). The plate material vertical processing line according to claim 1, further comprising:

a direction conversion device of the plate material;

wherein the direction conversion device includes [[the]] a platform; [[the]] a conveyance means that conveys the plate material in the substantially upright position while supporting the lower end of the plate material; [[the]] a fluid guide that supports the plate material in the non-contact state; and a direction conversion means that is mounted on the direction conversion device platform and is configured to convert a direction of conveyance of the direction conversion device conveyance means and a direction of guidance of the direction conversion device fluid guide from one horizontal direction to another within a horizontal plane.

4 (Currently Amended). The plate material vertical processing line according to claim 1, further comprising:

an acid treatment device of the plate material;

wherein the acid treatment device includes [[the]] a platform; [[the]] a conveyance means that is mounted on the acid treatment device platform and is configured to convey the plate material placed in the substantially upright position while supporting the lower end of the plate material; and an acid treatment means that is mounted on the acid treatment device platform and is configured to subject the surface of the plate material to acid treatment.

5 (Currently Amended). The plate material vertical processing line according to claim 1, further comprising:

a tiling tilting device of the plate material;

wherein the tiling tilting device includes [[the]] a platform; [[the]] a conveyance means that is mounted on the tilting device platform and is configured to convey the plate material placed in the substantially upright position while supporting the lower end of the plate material; and [[the]] a fluid guide capable of being tilted in a direction perpendicular to the surface of the plate material.

6 (Currently Amended). The plate material vertical processing line according to claim 1, further comprising:

a parallel-shift device of the plate material;

wherein the parallel-shift device includes [[the]] a platform; [[the]] a conveyance means that conveys the plate material placed in the substantially upright position while supporting the lower end of the plate material; [[the]] a fluid guide that supports the plate material in the non-contact state; and a linear reciprocation means that is mounted on the parallel-shift device platform and is configured to move the parallel-shift device conveyance means and the parallel-

shift device fluid guide in a direction perpendicular to a direction in which the plate material is conveyed.

7 (Currently Amended). The plate material vertical processing line according to claim 1, wherein each of the platform platforms has casters at a lower end thereof.

8 (Currently Amended). The plate material vertical processing line according to claim 1, wherein each of the processing devices has a coupling member by which the respective processing device is removably coupled to its adjacent processing device.

9 (Currently Amended). The plate material vertical processing line according to claim 2, further comprising:

a direction conversion device of the plate material;

wherein the direction conversion device includes [[the]] a platform; [[the]] a conveyance means that conveys the plate material in the substantially upright position while supporting the lower end of the plate material; [[the]] a fluid guide that supports the plate material in the non-contact state; and a direction conversion means that is mounted on the direction conversion device platform and is configured to convert a direction of conveyance of the direction conversion device conveyance means and a direction of guidance of the direction conversion device fluid guide from one horizontal direction to another within a horizontal plane.

10 (Currently Amended). The plate material vertical processing line according to claim 2, further comprising:

an acid treatment device of the plate material;

wherein the acid treatment device includes [[the]] a platform; [[the]] a conveyance means that is mounted on the acid treatment device platform and is configured to convey the plate

material placed in the substantially upright position while supporting the lower end of the plate material; and an acid treatment means that is mounted on the acid treatment device platform and is configured to subject the surface of the plate material to acid treatment.

11 (Currently Amended). The plate material vertical processing line according to claim 2, further comprising:

a tiling tilting device of the plate material;

wherein the tiling tilting device includes [[the]] a platform; [[the]] a conveyance means that is mounted on the tilting device platform and is configured to convey the plate material placed in the substantially upright position while supporting the lower end of the plate material; and [[the]] a fluid guide capable of being tilted in a direction perpendicular to the surface of the plate material.

12 (Currently Amended). The plate material vertical processing line according to claim 2, further comprising:

a parallel-shift device of the plate material;

wherein the parallel-shift device includes [[the]] a platform; [[the]] a conveyance means that conveys the plate material placed in the substantially upright position while supporting the lower end of the plate material; [[the]] a fluid guide that supports the plate material in the non-contact state; and a linear reciprocation means that is mounted on the parallel-shift device platform and is configured to move the parallel-shift device conveyance means and the parallel-shift device fluid guide in a direction perpendicular to a direction in which the plate material is conveyed.

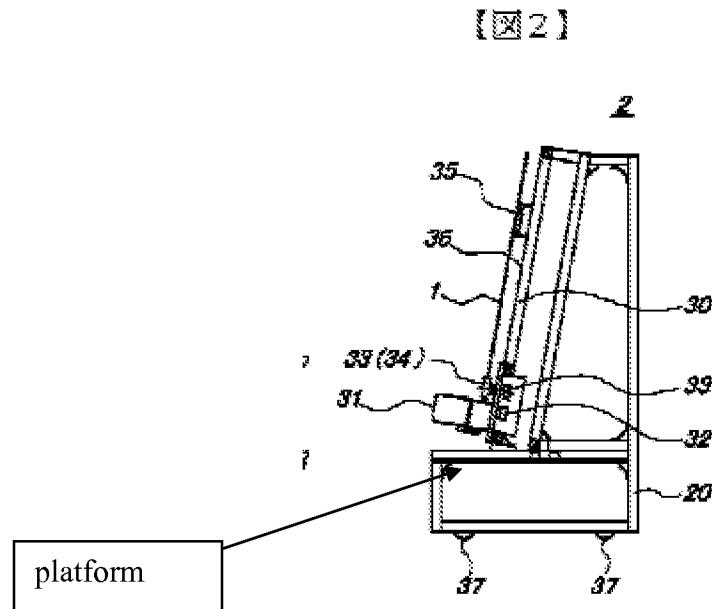
13 (Currently Amended). The plate material vertical processing line according to claim 2, wherein each of the platform platforms has casters at a lower end thereof.

14 (Currently Amended). The plate material vertical processing line according to claim 2, wherein each of the processing devices conveyance devices has a coupling member by which the respective conveyance processing device is removably coupled to its adjacent processing conveyance device.

2. The following is an examiner's statement of reasons for allowance:

JP 2002-308422 (hereinafter JP '422) teaches a processing line (any one or a combination of L1 through Ln shown in Figure 1, for example) for processing plate material 1 in a substantially vertical upright position (see Figures 2-6, for example). A plurality of processing devices, such as P1 and P3, are provided, each having a modular structure (see Figures 1, 4, and paragraphs 0023 and 0020 of the machine translation, for example).

Each of the aforescribed processing devices P1, P3, includes a "platform", labeled in the reproduction of Figure 2 below:



(Note that each of the processing devices P1, P3 includes conveyor modules like 2, shown in Figures 4, 2 and particularly see paragraph 0031 of the machine translation). Additionally, each of the modular processing devices includes a conveyance means, such as 33, that is mounted on the aforescribed platform, and which supports a lower end of the plate material 1 (see Figure 2 and also paragraph 0021 of the machine translation). Additionally, the processing devices each include a fluid guide that is mounted on the platform at 35 (see Figures 2-3) and that applies fluid pressure to a surface of the plate material 1 to support the plate material 1 in the substantially upright position in a non-contact state (see Figures 2-3 and paragraphs 0021-0022 of the machine translation, for example).

Additionally, JP '422 teaches that P1 and P3 are glass substrate cleaning equipment (paragraph 0031 of the machine translation), and further, teaches that P1 and P3 each include a “rinse shower part” (paragraph 0031 of the machine translation), and additionally, paragraph

0038 explicitly teaches that the cleaning equipment utilizes water. Thus, the rinse shower part that utilizes water in P1 is considered to constitute a "cleaning agent washing device" (since water is a "cleaning agent",) or a "water washing device", or a "high-pressure water spray device", since if there is a shower, the water is sprayed, and the spray is considered "high" pressure, as broadly claimed. Additionally, the rinse shower part that utilizes water in P3 is considered to constitute another one of these three choices ("cleaning agent washing device", "water washing device", or "high-pressure water spray device").

Re claim 2, note that JP '422 explicitly teaches that the cleaning portion or rinse shower part is located on or "mounted" on conveyance face 36, and thus, such is mounted, at least ultimately, on the aforedescribed platform (see paragraph 0031 of the machine translation, and also see Figure 2 re the location of conveyance face 36 relative to the platform). Note that whatever structure exists to locate the rinse shower part on the conveyance face constitutes the claimed "mounting element".

Re both claims 1 and 2, JP '422 additionally teaches that the other processing devices P2 and P4 through Pn include other types of equipment, such as a film deposition system, an exposure device, a development device, and a survey instrument (see paragraph 0032). Additionally, JP '422 teaches the use of a transfer robot before and after each of the processing equipment P2 and P4 through Pn (see paragraph 0032).

JP '422 does not explicitly teach that each of the additional stations P2 and P4 through Pn utilizes the same type of modular conveying arrangement described previously (with the conveyance means mounted on a platform and configured to convey a plate material placed in a substantially upright position while supporting a lower end of the plate material, and a fluid

guide that is mounted on the platform and is configured to apply a fluid pressure to a surface of the plate material to support the plate material in the substantially upright position and in a non-contact state, as set forth in claims 1 and 2). Additionally, JP ‘422 does not teach that any of the processing equipment P1 through Pn includes “at least one processing apparatus selected from a scribing device, a venting device for trimming the plate material, and a chamfering device” as set forth in independent claims 1 and 2.

Attention is also directed to JP 05-036658 (hereinafter JP ‘658), which teaches plural modular washers 4a, 4b, with a conveyance arrangement having the lower support 22 and the non-contact fluid guide 26, 27, 40, etc., for conveying the plate material 1 in an upright orientation.

However, JP ‘658 does not serve to overcome the deficiencies of JP ‘422, noting that JP ‘658 does not serve to teach any processing device (having the claimed conveyance and fluid non-contact guiding arrangements) that includes “at least one processing apparatus selected from a scribing device, a venting device for trimming the plate material, and a chamfering device” as set forth in independent claims 1 and 2.

There is no combinable teaching in the prior art of record that would, reasonably and absent impermissible hindsight, motivate one having ordinary skill in the art to so modify the teachings of either of JP ‘422 or JP ‘658, and thus, for at least the foregoing reasoning, neither JP ‘422 nor JP ‘658 render obvious the present invention as set forth in independent claims 1 and 2. Note that a mere teaching in the prior art of a scribing device, a venting device for trimming the plate material, or a chamfering device, *per se*, would not be sufficient in and of itself to render the claimed invention obvious over the JP ‘422 or JP ‘658 references, noting that such a teaching

would still not result in such scribing device, venting device for trimming the plate material, of chamfering device being included in a modular processing unit/device having the claimed conveyance and fluid guiding arrangements, and being in a "processing line" with another such module with one of the washers taught by either JP '422 or JP '658. Additionally, again note re the non-washing processing stations taught by JP '422 that JP '422 makes mention of a transport robot before and after the station, as described above (see paragraphs 0031-0032, for example).

Note that in references such as U.S. Pat. No. 7,252,188 to Lisec, there is no “fluid guide that is mounted on the platform and is configured to apply a fluid pressure to a surface of the plate material to support the plate material in the substantially upright position and in a non-contact state” as set forth in independent claims 1 and 2, noting that in the Lisec reference, the substantially vertical plate 5 is guided in a contacted manner via support rollers 2 (see at least Figures 1, 4, and col. 3, lines 23-28).

Similarly, in JP 07-223831 (JP '831), there is no “fluid guide that is mounted on the platform and is configured to apply a fluid pressure to a surface of the plate material to support the plate material in the substantially upright position and in a non-contact state” as set forth in independent claims 1 and 2, noting that in the JP '831 reference, elements 15 are “vibrational absorption material 15, such as sponge and soft rubber” that contacts the plate material workpiece W (see at least Figures 1-2 and paragraphs 0011-0012 of the machine translation).

Thus, neither the Lisec nor JP '831 references anticipate the present invention as set forth in independent claims 1 and 2.

Also, there is no combinable teaching in the prior art of record that would, reasonably and absent impermissible hindsight, motivate one having ordinary skill in the art to so modify the

teachings of any of the aforedescribed references to arrive at the present invention as set forth in independent claims 1 and 2, and thus, for at least the foregoing reasoning, none of the aforedescribed prior art serves to render obvious the present invention as set forth in independent claims 1 and 2. Note that it would involve impermissible hindsight to pick and choose which portions of the Liseec or JP '831 references (namely the machining elements, without the teachings of the contact guide arrangements taught by Liseec and JP '831) to apply to the teachings of either JP '422 or JP '658.

The aforedescribed prior art being representative of the closest prior art of record, for at least the foregoing reasoning, the prior art of record neither anticipates nor renders obvious the present invention as set forth in independent claims 1 and 2.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Comment on Priority

3. It is noted that the oath or declaration submitted August 18, 2006 sets forth a benefit claim under 35 USC 120 or under 35 USC 365(c) of PCT/JP2004/001787. Note that the present application was filed under 35 USC 371 as being the national stage application of PCT/JP2004/001787, and that the notice of acceptance of the present application under 35 USC 371 (Form PCT/DO/EO/903) was mailed on August 28, 2007. It is thus improper for the present application to claim benefit of the filing date of the international application of which it is the national stage since its filing date is the date of filing of that international application. See

MPEP §1893.03(c). That said, noting that the notice of acceptance of the present application under 35 USC 371 was mailed on August 28, 2007, the benefit claim under 35 USC 120 or 365(c) is being disregarded, and the application is being properly considered as being the national stage (under 35 USC 371) of the prior PCT.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erica E. Cadugan whose telephone number is (571) 272-4474. The examiner can normally be reached on Monday-Thursday, 5:30 a.m. to 4:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Bryant can be reached on (571) 272-4526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated

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information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Erica E Cadogan/
Primary Examiner
Art Unit 3726

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August 11, 2010